

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended): A method comprising:

storing a report object on a server, wherein the report object identifies a data cube storing multidimensional data;

in response to a request from a client device, retrieving the multidimensional data from the data cube in accordance with the report object;

communicating the multidimensional data and a copy of the report object from the server to the client device;

storing the multidimensional data within a virtual table on the client device;

storing state data on the [[a]] server, wherein the state data defines records a current viewing location within the virtual [[a]] data table storing multidimensional data on a by the client device;

formatting a web page at the server based on the current viewing location within the multidimensional data of the virtual data table stored at the client device as defined by the state data; and

communicating the web page to the client device for displaying to a user a portion of the data table stored on the client device;

retrieving a subset of the multidimensional data from the virtual data of the client device based on the current viewing location to render the web page on the client device in accordance with the copy of the report object;

in response to a scroll request from a user, selecting a different subset of the multidimensional data from the virtual table on the client device without requesting additional multidimensional data from the server;

updating the web page at the client device to display the different subset of the multidimensional data; and

sending a communication from the client device to the server to update the state table to record a new current viewing location within the virtual table on the client device in response to the scroll input.

Claim 2 (Previously Presented): The method of claim 1, wherein storing state data comprises storing at the server a starting row and a starting column within the data table stored on the client device.

Claim 3 (Previously Presented): The method of claim 1, wherein storing state data comprises storing one of a font size, a column width, a row width, a column height, a row height, one or more column labels and one or more row labels for use in formatting the web page.

Claim 4 (Previously Presented): The method of claim 1, wherein formatting the web page at the server based on the state data comprises:

calculating widths and heights for rows and columns of the web page based on data of the data table stored on the client device; and

generating code to format the web page according to the calculated widths and heights.

Claim 5 (Original): The method of claim 4, wherein the code comprises HTML.

Claim 6 Cancelled.

Claim 7 Cancelled.

Claim 8 (Currently Amended): A computer-readable medium having instructions thereon to cause a programmable processor to:

store state data on a server that defines a current viewing location of a client device into a data table buffered on the client device and storing multidimensional data;

format a web page at the server based on the current viewing location of the client device to display a portion of the data table buffered on the client device in accordance with the state data maintained at the server; and

communicate the web page to the client device for displaying the portion of the data table to a user;

receive a communication from the client device directing the server to update the state table to record a new current viewing location within the data table on the client device when the user scrolls the web page on the client device.

Claim 9 (Original): The computer-readable medium of claim 8 further including instructions to cause the processor to store a starting row and a starting column within the data table.

Claim 10 (Original): The computer-readable medium of claim 8 further including instructions to cause the processor to store one of a font size, a column width, a row width, a column height, a row height, one or more column labels and one or more row labels.

Claim 11 (Original): The computer-readable medium of claim 8 further including instructions to cause the processor to:

calculate widths and heights for rows and columns of the web page based on data of the data table; and

generate code to format the web page according to the calculated widths and heights.

Claim 12 (Previously presented): The computer-readable medium of claim 8 further including instructions to cause the processor to embed scroll bars in the web page based on an amount of data within the data table to display a viewable window into the data table stored on the client-device.

Claim 13 (Previously presented): The computer-readable medium of claim 8 further including instructions to cause the processor to communicate the data table to the client device.

Claim 14 (Currently Amended): A system comprising:

a multidimensional database storing multidimensional data;
a server storing a report object to access the multidimensional data; and
a client device coupled to the server;
wherein the in response to a request from the client device, the server retrieves the multidimensional data in accordance with the report object and communicates the multidimensional data to the client device to display a portion of the data to a user,
wherein the client device includes a virtual table to store the multidimensional data received from the server;

~~and further~~ wherein the server includes state data ~~defining~~ recording a current viewing location within the virtual table by the client device.

wherein the server formats a web page based on the current viewing location within the multidimensional data stored at the client device, and

wherein the client device retrieves a subset of the multidimensional data from the virtual data to render a web page on the client device and, in response to a scroll request, selects a different subset of the multidimensional data from the virtual table and updates the web page to display the different subset of the multidimensional data without requesting additional multidimensional data from the server, and

wherein the client device sends a communication from the client device to the server to record a new current viewing location within the virtual table on the client device in response to the scroll input.

Claim 15 (Currently Amended): The system of claim 14, wherein the server includes a page generation module to format the a web page based on the state data.

Claim 16 (Currently Amended): The system of claim 14,
wherein the server includes a packet engine to communicate the multidimensional data to the client-device in a stream of packets, and
wherein the packet engine outputs the stream of packets to first include the subset of the multidimensional data for rendering the web page by the client before the remainder of the multidimensional data is received by the client device and stored in the virtual table.

Claim 17 (Original): The system of claim 14, wherein the state data includes a starting row and a starting column within the virtual table.

Claim 18 (Original): The system of claim 14, wherein the state data includes one of a font size, a column width, a row width, a column height, a row height, one or more column labels and one or more row labels.

Claim 19 (Original): The system of claim 15, wherein the page generation module calculates widths and heights for rows and columns displayed to the user based on data of the data table.

Claim 20 (Previously presented): The system of claim 15, wherein the page generation module embeds scroll bars in the web page based on an amount of data within the data table.

Claim 21 (Currently Amended): A method comprising:

- communicating multidimensional data from a server to a client device;
- storing the multidimensional data on the client device;
- storing pointers at the client device defining a viewable window within the multidimensional data stored at the client device, wherein the viewable window is a subset of the data received from the server;
- formatting at the server a web page to include the subset of the multidimensional data located within the viewable window into the multidimensional data stored on the client device;
- and
- displaying the web page to a user via the client device;
- in response to a scroll request from a user, updating the pointers to define a new viewable window within the multidimensional data stored at the client device without requesting additional multidimensional data from the server;
- updating the web page to display the new viewable window of the multidimensional data;
- and
- sending a communication from the client device to record the new viewable window in response to the scroll input.

Claim 22 (Previously presented): The method of claim 21, wherein communicating the multidimensional data comprises communicating the data to the client device in a stream of packets; and wherein storing the data comprises assembling the packets to form a virtual table on the client device.

Claim 23 (Original): The method of claim 21 further comprising:

- transmitting an initial set of data packets to the client device;
- storing data from the initial set of data packets; and
- formatting the web page based on the data of initial set of data packets.

Claim 24 (Original): The method of claim 23 further comprising:

- receiving a request for any remaining data packets; and
- communicating the remaining data packets to the client device.

Claim 25 (Cancelled).

Claim 26 (Currently Amended): The method of claim 21 further comprising:
reordering rows of a document object model based on input received from user; and
filling the document object model with data encompassed by the viewable window.

Claim 27 (Original): The method of claim 21 further comprising:
receiving a user request to expand a member of the multidimensional data;
retrieving data for children of the expanded member as a function of the viewing window;
updating the pointers defining the viewable window to include the children of the
expanded member; and
refreshing the display of the client device based on the expanded viewable window.

Claim 28 (Original): The method of claim 27 further wherein retrieving the multidimensional
data comprises:
constructing a database query based on the pointers defining the viewable window; and
querying a database to retrieve rows proximate to the viewable window.

Claim 29 (Previously presented): The method of claim 27 further comprising:
storing a report object defining at least the dimensions and members of the
multidimensional data; and
updating a report object to include children of the member to be expanded.

Claim 30 (Previously presented): The method of claim 29, further comprising:
storing the data on the client device as a virtual table; and
generating a client-side script to update the virtual table to accommodate the expanded
member.

Claim 31 (Previously presented): The method of claim 29 further comprising:
generating a client-side script based on the report object;
communicating the client-side script to the client device; and
executing the client-side script to create a representation of the report object on the client device.

Claim 32 (Original): The method of claim 31 further comprising generating client-side script to update the representation to accommodate additional data resulting from the expand request.

Claim 33 (Currently Amended): A computer-readable medium having instructions thereon to cause a programmable processor to:
receive multidimensional data from a server;
store the multidimensional data in a virtual table on a client device;
store pointers at the client device defining a viewable window within the virtual table for the client device;
receive format a web page formatted at the server to specify the viewable window into the data stored on the client device; ~~and~~
display the web page to a user
receive scroll input from the user; and
in response to the scroll input, display a new web page at the client device without requesting additional data from the server and send a communication from the client device directing the server to record a new current viewing location within the data table on the client device.

Claim 34 (Previously presented): The computer-readable medium of claim 33 having instructions thereon to cause a programmable processor to receive the data at the client device in a stream of packets and to assemble the packets to form the virtual table.

Claim 35 (Previously presented): The computer-readable medium of claim 34 having instructions thereon to cause a programmable processor to:

- receive an initial set of data packets;
- store data from the initial set of data packets; and
- format the web page based on the data of the initial set of data packets.

Claim 36 (Original): The computer-readable medium of claim 35 having instructions thereon to cause a programmable processor to:

- issue a request for any remaining data packets; and
- receive the remaining data packets to fill the virtual table.

Claim 37 (Original): The computer-readable medium of claim 33 having instructions thereon to cause a programmable processor to:

- receive a user request to scroll the viewable window through the data;
- update the pointers defining the viewable window based on the scroll request; and
- format the web page to include data encompassed by the viewable window.

Claim 38 (Original): The computer-readable medium of claim 37 having instructions thereon to cause a programmable processor to:

- reorder rows of a document object model based on the request received from the user; and
- fill the document object model with the data encompassed by the viewable window.

Claim 39 (Original): The computer-readable medium of claim 33 having instructions thereon to cause a programmable processor to:

- receive a user request to expand a member of the multidimensional data;
- issue a request to a server to retrieve data for children of the expanded member as a function of the viewing window;
- update the pointers defining the viewable window to include the children of the expanded member; and
- refresh the display of the client device based on the expanded viewable window.

Claim 40 (Currently Amended): A method comprising:

- storing a report object defining dimensions and members of multidimensional data that are included in an electronic report;
- translating the report object into a client-side script;
- communicating the client-side script from a server to a client device; and
- executing the client-side script to create a representation of the report object on the client device;
- sending multidimensional data from the server to the client device for buffering on the client device; and
- in response to input from a user, sending a communication from the client device to the server to record a current viewing location within the multidimensional data buffered on the client device.

Claim 41 (Original): The method of claim 40, wherein executing the client-side script comprises creating the representation in a native format supported by a web browser.

Claim 42 (Original): The method of claim 41, wherein creating the representation in a native format comprises creating the representation according to a document object model supported by Internet Explorer™ from Microsoft™.

Claim 43 (Previously presented): The method of claim 40, further comprising presenting a web-based report to a user based on the client-side representation.

Claim 44 (Original): The method of claim 40, wherein the client-side representation defines a table having a number of rows and columns for displaying the included dimensions and members.

Claim 45 (Original): The method of claim 40, wherein storing the report object comprises:

storing one or more dimension objects that define a number of dimensions within multidimensional data for the report;

storing one or more query set object that define a database query string for each dimension; and

storing one or more member objects that define the included members for each dimension.

Claim 46 (Currently Amended): A system comprising:

- a client device;
- a database storing multidimensional data; and
- a server comprising:
 - a report object defining dimensions and members of multidimensional data that are included in an electronic report;
 - a page generation module to access the multidimensional data and format a web page based on the report object, wherein the page generation module records a current viewable window into a portion of the multidimensional data stored at the client side and formats the web page based on the current viewable window;
 - a model converter to translate the report object into a client-side script for creating a client-side representation of the report object; and
 - a packet engine to communicate the web page and the client-side script to the client device in a stream of packets.

Claim 47 (Currently Amended): The system of claim ~~46~~ 46, wherein the client device displays the web page to a user, wherein the client device includes a virtual table to store data received from the packet engine.

Claim 48 (Original): The system of claim 47, wherein the server includes state data defining a current viewing location within the virtual table.

Claim 49 (Original): The system of claim 48, wherein the state data includes a starting row and a starting column within the virtual table.

Claim 50 (Original): The system of claim 48, wherein the state data includes one of a font size, a column width, a row width, a column height, a row height, one or more column labels and one or more row labels.

Claim 51 (Original): The system of claim 50, wherein the page generation module calculates widths and heights for rows and columns of the web page based on characteristics of the accessed data.

Claim 52 (Previously presented): The system of claim 46, wherein the page generation module embeds scroll bars in the web page.

Claim 53 (Previously presented): The system of claim 47, wherein the client device maintains pointers defining a viewing window within the virtual table.